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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/973,766	10/11/2001	Hisao Ikeda	214907US0	7572

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EXAMINER	
BALASUBRAMANIAN, VENKATARAMAN	
ART UNIT	PAPER NUMBER
1624	10

DATE MAILED: 12/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/973,766

Applicant(s)

IKEDA ET AL.

Examiner

Venkataraman Balasubramanian

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4-9 and 11-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-9 and 11-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Applicants' response, which included cancellation of claims 3, 10 and amendment to claims 1 and 8, filed on 10/17/2002 is made of record.

Claims 1-2, 4-9, 11-35 are now pending.

In view of applicants' amendment, the following apply.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-2, 4-9, 11-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al. US 6,124,454 in view of Tsukamoto et al. US 5,892,065 for reasons of record. To repeat:

Ikeda et al. teaches β -form of tris-(2,3-epoxypropyl)-isocyanurate crystals containing 2 to 15 wt% α -form and the process of making β -form of tris-(2,3-epoxypropyl)-isocyanurate crystals with 2 to 15 wt% α -form which involves same steps claimed in the instant claims. See col.3 lines 29-67, and col. 4. Note the steps A, B, C, d and E are same as in the instant claims. See col. 4-12 for further details of the process seeding, cooling and removal of excess epichlorohydrin from the product. See examples 1-14 on col. 12-21 for the experimental details of the process.

The instant claims 1-2,4-7 differ from Ikeda et al. in not reciting a seeding process, while claims 8-9 and 11-35 differ from the reference explicitly reciting a coating a film of said reaction solution.

However, it is known in the prior art at the time of the instant invention is made that recrystallization of product can be achieved both with or without seeding and that seeding permits control to obtain specific particle size formation and that saturated solution can be made by heating. See for example the prior art description provide in col. 2 of Ikeda et al., wherein recrystallization form various solvent such as methanol, chloroform etc are described.

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As for coating a film on a substrate is concerned, it is known that excess epichlorohydrin can be removed in a film evaporator. The secondary reference, which relates a method of producing purified epoxy compound, clearly teaches adaptation of the prior art process for removing epichlorohydrin from the desired product. See col. 1 through col. 14 for detailed description of the prior art and the invented process. Especially see col. 15 through 19 for the thin film process of removing residual epichlorohydrin. Note the details of coater to control film thickness are disclosed on col. 17, lines 20-67.

Note the both the prior art teach the same overall process of purifying tri(2,3-epoxypropyl)-isocyanurate, especially removal of residual epichlorohydrin. Thus one having ordinary skill in the art at the time of the invention was made would have been motivated to combine the teachings of Ikeda et al., and Tsukamoto et al., and employ the process taught by these two processes with variations in process parameters permitted by the combined references and expect to obtain the desired product because he would have expected the analogous process behave similarly. It has been held that application of an old process to an analogous material to obtain a result consistent with the teachings of the art would have been obvious to one having ordinary skill. Note *In re Kerkhoven* 205 USPQ 1069.

Applicants should note that this rejection is same as that made in the previous office action except that cancelled claims 3, and 10 are excluded from the rejection. Applicants' argument to overcome this rejection, by reciting specific solvents in step B and limiting the hydrolysable chlorine content to 110 ppm, is not persuasive.

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1. Applicants argue that Ikeda et al. does not teach acetonitrile, toluene, dioxane and dimethylformamide as solvent in step B - a new limitation added in the amendment of paper # 9. However, contrary to applicants' urging, Ikeda et al. teaches use of organic solvent in the ninth aspect of the process. See col. 4, lines 46-53, wherein Ikeda et al. teaches a solvent can be used in the process taught according to any one of the third to eighth aspects. In lines 54-67 of col. 8 again, Ikeda et al. teaches use of solvent, which can be various organic solvents. More specifically acetonitrile and dimethylformamide are also taught.

In the instant process in step B the reaction solution is evaporated dryness to get solid residue for treating with organic solvent whereas Ikeda et al. teaches concentration of the reaction mixture to certain percentage of solid content to get solid product. Ikeda et al. also teaches evaporation to dryness to obtain solid concentration on col. 6, lines 44-47.

Both instant process and the prior art do the same thing concentrate the reaction mixture and the variation seen is an obvious variant.

2. Contrary to applicants' urging that the amount of hydrolysable chlorine content is utmost 100 ppm in the instant process, except for example 2, all other examples show more than 100 ppm and hence the generality of the process claimed cannot be validated based on the experimental results.
3. Applicants seem to urge that because of the step B, which recites evaporation of reaction mixture to dryness followed by solvent treatment with specific solvent, is critical for the hydrolysable chlorine content. But examples 1-6 shown in the

specification fail to support this contention as variation in hydrolysable chlorine content is seen even with the use of the same solvent. See examples 1-3. Again equivalency of the solvent specifically recited is also refutable in view of the large variation in hydrolysable chlorine content with these solvents as seen in examples 1-6.

4. Contrary to applicants' urging that the secondary reference is not relevant, the secondary reference is pertinent. Applicants' attention is drawn to claims 26-35, which require "coating a film of said reaction solution on a substrate and heating". Hence this rejection is proper and is maintained.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication from the examiner should be addressed to Venkataraman Balasubramanian (Bala) whose telephone number is (703)

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305-1674. The examiner can normally be reached on Monday through Thursday from 8.00 AM to 6.00 PM. The Supervisory Patent Examiner (SPE) of the art unit 1624 is Mukund Shah whose telephone number is (703) 308-4716.

The fax phone number for the organization where this application or proceeding is assigned (703) 308-4556.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1235.

V. Balasubramanian
Venkataraman Balasubramanian

12/26/2002